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Tariff Policy and Taxation in Developing Countries

Bela Balassa

In moving toward an ideal policy scheme, value-added taxes and excises on luxury commodities and on commodities that create negative consumption externalities can be established instantaneously while a tariff reform will take time. At the same time, tariffs should be reformed according to a predetermined timetable, made public in advance, that permits producers to adjust.

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Developing countries are well advised to adopt appropriate tariff and tax policies. An ideal scheme of such policies would include the following:

• Export taxes should be set on the basis of the long run elasticity of foreign demand in the case of commodities in which the country has market power and at a rate to ensure that exportable production equals the quota when export quotas are applied.

• Import tariffs should be set at equal rates on all manufactured goods, complemented by taxes on their primary inputs, to ensure equal effective rates of protection at desirable levels, preferably not exceeding 10 percent. Primary activities and exports in general should be exempted from tariffs on their inputs.

• Value-added taxes should be levied on all commodities at equal rates, supplemented by excise taxes on luxury commodities and on commodities that create negative consumption externalities.

In moving toward an ideal policy scheme, value-added taxes and excises on luxury commodities and on commodities that create negative consumption externalities can be established instantaneously while a tariff reform will take time. At the same time, tariffs should be reformed according to a predetermined timetable, made public in advance, that permits producers to adjust.

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TARIFF POLICY AND TAXATION IN DEVELOPING COUNTRIES

Bela Balassa *

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Tariff Policy and Taxation in Developing Countries

Bela Balassa

This paper will deal with issues relating to tariff policy and taxation in developing countries. Section I of the paper will briefly review the conditions of optimal commodity taxation. In Section II, the assumptions will be made that import tariffs provide the only possible form of taxation, that the country does not affect world market prices and there are no export quotas, and that there are no externalities in production. Section III will examine the case when a country can affect world market prices or there are export quotas. In Section IV, externalities in production will be introduced. Section V will combine the analysis of the previous sections, and Section VI will consider issues of policy adjustment.

I. Optimal Commodity Taxation

On the assumptions that lump-sum taxes are not feasible and that producer prices are fixed, in dealing with a representative consumer, Ramsey (1927) devised rules for optimal commodity taxation. He considered the problem of raising a given revenue from the consumer in such a way as to minimize the loss of utility that arises from taxation. 1/

In the case when the demand for each commodity depends only on the commodity's own price but not on the prices of other commodities, tax rates should be inversely proportional to the elasticity of demand. In the more

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1/ The implications of removing the assumption of fixed producer prices will be noted below. It will further be indicated that the use of consumption taxes avoids creating inefficiencies at the production level.

general case, when allowance is made for intercommodity substitution, optimal taxation calls proportional reductions in (compensated) demand for all commodities. 1/

Assuming that leisure is not taxed, the Ramsey rule can be interpreted in terms of complementarity with, and substitution for, leisure (Deaton, 1981, p. 1250). Now, if each commodity is equally substitutable (complementary) for leisure, uniform taxation of all commodities will be optimal. Should this not be the case, commodities that tend to complement leisure should bear higher taxes. In this way, one will indirectly tax leisure.

To simplify, one may recommend a uniform tax on all commodities, with additional excise taxes imposed on commodities that are complementary with leisure. This will call for excise taxes on pleasure boats, sports cars, golf clubs and a paraphernalia of commodities that are used in carrying out leisure activities.

Next, consider the case of many consumers. Now, income distributional considerations will enter, and excise taxes may be levied on commodities consumed by the rich. These commodities will often be complementary with leisure but not necessarily so.

Finally, one may introduce considerations of consumption externalities. This will lead to the imposition of so-called sin taxes (e.g. taxes on alcohol and tobacco) on the grounds that the deterioration of the health of individuals, consequent upon their consumption, will entail a cost to society.

1/ For a recent exposition, see Stern 1987.

An attempt has been made here to safeguard uniform commodity taxation in a world where the Ramsey rule applies, with the introduction of additional excise taxes for commodities which are complementary with leisure, are consumed by the rich, and involve negative consumption externalities. This has been done for the case where all commodities are taxed and leisure is untaxed.

The situation is more complicated if there are untaxed commodities, such as the services of domestic servants or imputed income from owner-occupied housing (Harberger, 1988, p. 6). The derivation of the appropriate set of commodity taxes would now require information on complementarity and substitutability among commodities that are difficult to obtain.

In reference to complementary with, and substitution for, leisure, Deaton observed, "it is likely that empirically calculated tax rates, based on econometric estimates of parameters, will be determined in structure, not by the measurements actually made, but by arbitrary, untested (and even unconscious) hypotheses chosen by the econometrician for practical convenience" (1981, p. 1245). These strictures apply even more strongly if there are many untaxed commodities.

And how about the assumption of fixed producer prices? This will be the case for traded goods under free trade in a country that cannot affect world market prices. For nontraded goods, the assumption requires constant costs of production. In cases when decreasing costs apply, such as public utilities, adjustments would need to be made in tax rates. This may be done

in conjunction with the pricing of public utilities that requires equating prices to marginal costs. 1/

In practice, then, one may utilize uniform commodity taxes, with the addition of excises for the reasons mentioned above. Under the assumptions made, uniform commodity taxes should apply at the consumption level, so as to avoid creating inefficiencies at the production level. Also, under the destination principle, exports are exempted from the tax that is imposed on imports.

Consumption taxes may be levied in the form of a sales tax on final consumption goods or in the form of a value added tax. The former has the advantage of simplicity while the latter would ensure that taxes are actually imposed by allowing for deductions of value added taxes paid at earlier stages of fabrication.

In fact, developed countries have increasingly adopted value added taxes, except that in the United States sales taxes are levied by the states. There are further excise taxes on luxury commodities (many of which are complementary with leisure) as well as sin taxes.

Value added taxes have come to be used also in developing countries. But in the large majority of cases commodity taxes take the form of a turnover tax, levied at each stage of fabrication. This tax has various disadvantages. To begin with, producers' choices between taxed intermediate inputs and untaxed inputs are distorted. Also, there are distortions among

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1/ In a general equilibrium framework, nontraded goods other than public utilities will be subject to increasing costs. This would imply taxing them at a higher rate than traded goods, which is just the opposite of the situation commonly observed as far as import-competing goods are concerned.

commodities that go through a different number of stages of fabrication or are subject to different tax rates. Finally, incentives are provided for the vertical integration of the production process in order to escape the cascading turnover tax.

II. Tariffs in the Place of Commodity Taxes

Next, we introduce tax collection costs. As Corden notes, "firstly, there are the costs of tax administration incurred by the tax-collecting authority... Secondly, there are the resource costs incurred by taxpayers to fulfil their tax obligations while minimizing payment, or perhaps to ensure successful evasion... Thirdly, there are the distortion-costs which result from taxpayers rearranging their affairs as part of an avoidance or evasion effort" (1974, p. 65). According to Corden, "the central point is that collection costs for trade taxes are generally much lower than for other taxes" (Ibid), when the latter include commodity as well as income taxes. 1/

Riezman and Slemrod went further in arguing that "if there is a cost associated with collecting taxes, tariffs are part of a first-best tax package provided their collection cost is small enough relative to excise taxes" (1987, p. 545). The authors further provided evidence that the share of taxes on international transactions is related to the cost of tax collection. The cost of tax collection, in turn, is shown to vary with the level of development.

1/ Commodity taxes are defined here to exclude trade taxes (import tariffs and export taxes).

Let us take the extreme case where collection costs on domestic taxes [1] are so high that only taxes on international transactions are used. [2] Assume further that these taxes take the form of import tariffs, that the country cannot affect world market prices and there are no export quotas, and that there are no externalities in production.

The question arises, then, what is the optimal choice of import tariffs to raise a given revenue. This question will be dealt with by focusing on production efficiency and neglecting efficiency in consumption on the grounds that the application of the Ramsey rule is even more difficult in developing than in developed countries. [3] Production efficiency is reached when effective protection rates on value added are equalized, thereby providing equal incentives to all productive activities.

As a starting point, note that the application of import tariffs and export subsidies at identical rates would result in a situation where effective rates of protection are equalized, thereby ensuring production

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1/ Domestic taxes include commodity taxes as well as income taxes; income taxes are not considered in this paper. It can be shown that consumption taxes are superior to income taxes if savings are introduced, provided that each commodity is equally substitutable for leisure (Atkinson and Stiglitz, 1972).

2/ This is indeed an extreme case that is used purely as an expository device. Thus, according to World Development Report, 1988, "the administrative costs of trade and excise taxes normally range from 1 to 3 percent of revenue collected. The corresponding figure for VAT can be as high as 5 percent; for personal income taxes it can reach 10 percent" (p. 85). Also, as noted in Section V, tariffs involve a considerable efficiency cost that should be contrasted to the cost of collection.

3/ See, however, the excellent paper by Mitra on India (1987). See also Dahl, Devarajan, and van Wijnbergen (1986) and Section V below.

efficiency. 1/ However, such a combination would raise no revenue in a situation of balance-of-payments equilibrium, hence the use of import tariffs.

Consider a model of three commodities: a final good, an intermediate good used in its manufacture, and an export good, which is not used in the production of the final good and it does not use the intermediate good as an input. In the absence of production externalities, the optimal situation would involve zero tariffs. However, in the case considered, tariffs need to be levied for revenue purposes.

If the final good and the intermediate good are equally substitutable in production for the export good, the second-best optimum would entail levying tariffs at equal rates on the final good and on the intermediate good. In this case, the effective rate of protection would equal the tariff rate on the final as well as on the intermediate good while the effective rate of protection on the export good would be nil.

By comparison, levying a tariff only on the final good would be suboptimal. In this eventuality, raising a given revenue would require a higher tariff and the effective rate of protection on the final good would exceed this tariff while it would be nil on the intermediate good. The effective rate of protection would remain nil on the export good.

These conclusions can be illustrated by an example. Take the case when the final good, the intermediate good, and export good each represent one-third of value added in the economy and the intermediate good provides one-half of the value of output for the final good. Under one alternative, tariffs -- and hence effective rates of protection -- are 10 percent on both

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1/ In fact, if adjustment is made for the exchange rate, these rates are nil.

the final and the intermediate good. Under another alternative, a 20 percent tariff is levied on the final good and there is no tariff on the intermediate good, resulting in a 40 percent effective protection on the former and nil effective protection on the latter.

Government revenue will be the same under the two alternatives. However, the bias against exports, measured by the average effective rate of protection on the final and the intermediate good, will be greater under the second alternative and there will also be discrimination in favor of the final, and against the intermediate, good.

A special case is when the intermediate good cannot be produced domestically. Now, if the intermediate good accounts for one-half of product value under free trade, setting the duty on the intermediate good at double that of the final good will ensure nil effective protection for the latter. Tariff revenue can thus be provided with nil effective protection. 1/

The above conclusions can be readily extended to the case when there are many goods. Second-best optimum will require setting uniform tariffs if all import-competing goods are equally substitutable in production for the export goods; imposing the uniform tariff on export goods used in the production of import-competing goods; and instituting a duty drawback scheme for inputs used in the production of export goods. 2/

Nor are the conclusions affected if non-traded inputs are introduced in the analysis as long as the Corden convention of calculating effective

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1/ This point is made in Harberger, 1988, p. 18.

2/ It should be noted that the proposed scheme involves imposing the uniform tariff rate also on imports that are not produced domestically.

rates of protection is applied. Under this convention, value added in the production of the non-traded good is combined with value added in the production of the traded good using the non-traded input while the intermediate good used in the production of the non-traded good is combined with the intermediate good used in the production of the traded good in question.

Up to this point, the analysis has been conducted in the form of a model that distinguishes between import-competing and export goods. However, import-competing goods may also be exported if conditions are favorable. Such nontraditional exports should also receive tariff exemptions on their imported inputs just as traditional exports.

A related issue is that exporters should be given a free choice between imported and domestic inputs. This will ensure that low-cost inputs are chosen and, at the same time, provide incentives for the producers of domestic inputs to improve their operation.

Tariff exemptions for inputs used in exports have been widely used in developing countries. It has been suggested, however, that in Sub-Saharan Africa drawback schemes providing tariff rebates for inputs used in exports have not been successful (Shalizi and Squire, 1988, p. 10), and problems have been encountered in some Latin American countries as well.

In the case of these countries, use should be made of international experience with tariff rebate schemes or, if such efforts are unsuccessful, duty free entry may be ensured in the framework of free trade zones. Should this not work, one may consider the graduation of tariffs so as to minimize adverse effects on exports. But this is only a possibility rather than a

certainty, because uniform tariffs may still be superior to non-uniform tariffs.

III. The Case of Optimal Export Taxes

In the case discussed in Section II, the hypothetical developing country was a price taker in world markets. Next, we consider the case when the country can affect world market prices by its own actions. In this eventuality, export taxes may be used. These taxes should be set on the basis of the long-run elasticity of foreign demand so as to maximize economic welfare in the country concerned [1/] (Mantel and Marterina-Mantel, 1986). It should be noted, however, that there are relatively few such cases in developing countries.

Export taxes will be the optimal measure also if a country is subject to quotas on its exports. Such will be the case under an international commodity agreement or under foreign quotas and so-called voluntary export restraints. In these instances, export taxes can be used to appropriate the quota profits enjoyed by the exporters. They should be set so as to ensure that exportable production equals the amount of the quota. [2/]

Examples of international commodity agreements are OPEC and the International Coffee Agreement. And while oil production is carried out mostly by state enterprises, the export taxes will indicate their obligation to the government budget. In turn, coffee is produced on private farms that can be subjected to export taxes; in Sub-Saharan Africa, these taxes have

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1/ Note, however, that optimal export taxes imposed by individual countries reduce world welfare.

2/ Alternatively, use may be made of a system of auctions.

taken the form of profits by government-owned marketing boards that pay less than the world market price for coffee.

Exports of textiles and clothing are limited under the Multifiber Arrangement; steel exports are subject to limitations under bilateral agreements; and some developed countries limit the imports of footwear and certain electronics products from particular developing countries. In all these cases, export taxes will be an optimal measure. Such taxes have indeed been used in the form of fees for "quota tickets" under the MFA in East Asian countries.

In the cases described, export taxes should be used even if domestic taxes are available as they represent a first-best measure. The question arises, however, if developing countries would derive sufficient revenues from export taxes. Such will be the case only for a few OPEC countries with small populations. Correspondingly, tariffs should also be applied as long as domestic taxes are not feasible (the assumption made in Section II).

Export taxes are widely employed by developing countries. A 1987 study of 74 countries found that export taxes were used in at least 53 of these countries (World Development Report, 1988, p. 91). This represents an excessive use of export taxes as countries used export taxes also in the place of land taxes and commodity taxes, which provide revenue at a lesser economic cost.

IV. Production Externalities

Assume next that the necessary revenue can be provided through domestic taxes but there are production externalities in the manufacturing sector that call for the preferential treatment of this sector. Such externalities may result from the "production" of skills and technological

change, the benefits of which are not captured by the profit calculations of the entrepreneur. There is said to be a difference in this regard between manufacturing and agricultural activities as the latter generally use less skilled labor, and technological change is promoted chiefly by agricultural stations rather than by individual firms.

If this were the case, it would be optimal to use measures to increase value added in manufacturing. Bertrand has considered this case for the event that the objective is to attain a certain amount of value added in the manufacturing sector, or a certain share of national value added in the sector (Bertrand, 1972).

Bertrand has shown the following decision rules to be appropriate in the case described: (1) equalize the effective rate of protection within the manufacturing sector; (2) equalize the effective rate of protection within the non-manufacturing (primary) sector; and (3) establish a common rate of discrimination between manufacturing and non-manufacturing activities. This amounts to the application of the "market principle" under which equal protection is accorded to all manufacturing activities, letting competition do the rest.

The next question concerns the rate at which protection is provided to manufacturing activities. The author has suggested that "considering ... the lack of empirical evidence on external economies and the observed adverse effects of high protection, it would appear that effective protection rates on manufacturing activities in excess of 10 percent would involve costs that are not commensurate with the expected benefits" (Balassa, 1977 p. 20).

While the expression "protection" has been used above, the first best alternative is to provide production subsidies to manufacturing activities.

This will rarely be possible, however, because of financial limitations in developing countries. Import tariffs cum export subsidies would have the same effect, except for increasing the cost of consumption. But, export subsidization again requires revenues and it is also open to countervailing action. Correspondingly, the measures taken may be limited to rebating indirect taxes and tariffs on inputs into export production and providing other GATT-conforming export incentives.

Thus, while ideally import substitution and exports in the manufacturing sector should receive equal incentives, thereby ensuring the equality of effective rates of protection on import substituting and export activities in this sector, in practice some bias against export activities has to be accepted. At the same time, the proposed 10 percent effective protection on the manufacturing sector would minimize this bias.

For reasons discussed in Section II, providing equal effective protection in manufacturing would necessitate setting uniform tariffs on manufacturing activities, complemented with the taxation of primary inputs at the same uniform rate. In turn, primary activities and all exports should be exempted from tariffs on their inputs.

V. Commodity Taxation cum Import Tariffs and Export Taxes

Note has been taken of the fact that collection costs are lower for import tariffs than for commodity taxes. 1/ The reverse of the medal is that import tariffs involve higher economic costs than commodity taxes do. According to a study of the Philippines, the marginal economic cost of import

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1/ As noted earlier, commodity taxes are defined to exclude trade taxes (import tariffs and export taxes).

tariffs is rising rapidly with the rate of tariff while there are only very small increases in the case of commodity taxes. Thus, the marginal economic cost of a 25 percent tariff is 2.25 times the revenue raised while it is negligible for commodity taxes. Also, the marginal economic cost is 75 percent for a 15 percent tariff and 150 percent for a 21 percent tariff (Clarete and Whalley, 1987).

It would appear, then, that the economic costs of tariffs will tend to outweigh their collection cost advantages relative to commodity taxes. Thus, above a very low level of development, where collection costs of commodity taxes are especially high, it may be suggested that tariffs be used only to compensate for production externalities.

One may now consider the elements of an optimal tax structure for developing countries. The elements of this structure include commodity taxes (a consumption tax and excises), import tariffs, and export taxes. The appropriate rules may be described in reverse order.

1. Export taxes should be set on the basis of the long-run elasticity of foreign demand in the case of commodities in which the country has market power and at a rate to ensure that exportable production equals the quota in the case when export quotas are applied.

2. Import tariffs should be set at equal rates on all manufactured goods, complemented by taxes on their primary inputs, so as to ensure equal effective rates of protection at desirable levels, preferably not exceeding 10 percent. Primary activities and all exports should be exempted from tariffs on their inputs.

3. Value added taxes should be levied on all commodities at equal rates, supplemented by excise taxes on luxury commodities and on commodities

that create negative consumption externalities.

This sequence is logical since one would have to determine first the amount of revenue that may be collected by export taxes and by tariffs that compensate for production externalities. Rates of commodity taxes may, then, be set to provide for revenue goals. At the same time, the rate of the value added tax will depend on the revenues obtainable from excises.

It should be emphasized that the proposed value added and excise taxes would equally apply to domestic production and to imports. Thus, the objection raised by Shalizi and Squire, according to which "there is no reason to suppose that uniform nominal tariffs imply uniform rates of effective protection when there are other taxes on trade and production in the system" (p. 9) does not apply to the described scheme. It does apply, however, to many actual systems of protection.

VI. Reforming Commodity Taxes, Import Tariffs and Export Taxes

Section V described an optimal structure of commodity taxes, import tariffs, and export taxes in a developing country. In practice, however, we do not deal with a tabula rasa but rather the existing structure of commodity taxes, import tariffs, and export taxes needs to be reformed.

In many developing countries, the existing structure includes turnover taxes and various excises; quantitative import restrictions; import tariffs levied at varying rates, giving rise to highly disparate levels of effective protection; and export taxes in excess of optimal levels. The question is, then, how can one transform the existing structure into an optimal one.

There have been instances in developing countries when commodity taxes were reformed in a single action through the establishment of a value

added tax and excise taxes. Such was the case in 1983 in Indonesia, for example.

At the same time, in Indonesia the value added tax applies only to manufactured goods; it is levied at the manufacturing and import stage; and it excludes small firms. Other countries in a similar situation may also adopt such a compromise solution, with a view to eventually progressing towards a comprehensive value added tax. This tax is used in a number of Latin American countries, although small firms are excluded in some cases.

Parallel with the establishment of a value added tax, one may reduce export taxes to optimal levels. In this way, the rate of the value added tax is set so as to compensate for the loss of the export tax revenue. Such was the case in Malawi in 1986-87, where a consumption-tax type commodity tax was established at the manufacturer and importer level.

Quantitative import restrictions should be replaced by tariffs. Also, the system of tariffs should be reformed, with a view to establishing an optimal tariff structure. However, an optimal tariff structure cannot be established instantaneously. This is because of the need for adjustment in the production structure established in response to the existing tariffs. Rather, changes should be made over time. But, this should be done according to a predetermined timetable, announced in advance, so as to permit producers to adjust.

The timetable would involve reducing high tariffs and raising tariffs that are below the long term target of 10 percent. In reducing high tariffs

use may be made of the "concertina" method, according to which the higher the tariff the greater are the reductions (Corden, 1974, pp. 369-70). 1/

Setting tariffs on inputs has been objected to by Shalizi and Squire on the grounds that "it provides protection to the domestic production of inputs relative to production for export" (p. 10). However, in the absence of tariffs on inputs, their production is discriminated against relative to the production of final goods. Thus, imposing tariffs on inputs will result in a welfare improvement by reducing discrimination against these inputs as well as in a welfare deterioration by increasing discrimination against exports. Michaely notes that "the question of which impact is more important would depend on the elasticities of substitution among the sectors involved. It may be presumed that the welfare-enhancing substitution will dominate; but this is an empirical judgment, or guess, rather than a logical necessity" (Michaely, Papageorgiou, and Choksi, 1989, Appendix A-2, p. 13).

One may go a step further and argue that there will be a welfare improvement if the elasticity of substitution for exports in production is the same across-the-board and increases in tariffs on inputs are compensated by reductions in tariffs on final products. Under the assumptions made in Section II of the paper, the average bias of the incentive system against

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1/ Needless to say, increases in taxes on domestic production are equivalent to reductions in import tariffs.

exports will decline in such a case while differences in effective protection rates among import-competing goods will be reduced. 1/

Conclusions

This paper has considered tariff policy and taxation in developing countries. Following a discussion of optimal commodity taxation, the paper examined the imposition of import tariffs under alternative assumptions. First, it was assumed that domestic taxes cannot be used, that the country cannot affect world market prices and there are no export quotas, and that there are no externalities in production. Next, consideration was given to the case when the country can affect world market prices or there are export quotas. Subsequently, the case of production externalities was examined. Finally, commodity taxation was introduced simultaneously with import tariffs and export taxation.

In the latter case, it was suggested that an ideal scheme should include the following:

1. Export taxes should be set on the basis of the long-run elasticity of foreign demand in the case of commodities in which the country has market power and at a rate to ensure that exportable production equals the quota in the case when export quotas are applied.

2. Import tariffs should be set at equal rates on all manufactured goods, complemented by taxes on their primary inputs, so as to ensure equal effective rates of protection at desirable levels, preferably not exceeding 10

1/ This is apparent from the example cited in Section II that considered two alternatives, which provided equal tariff revenue.

percent. Primary activities and all exports should be exempted from tariffs on their inputs.

3. Value added taxes should be levied on all commodities at equal rates, supplemented by excise taxes on luxury commodities and on commodities that create negative consumption externalities.

The proposed tax structure would represent a considerable change in developing countries compared with the present situation. In particular, in 1985 trade taxes accounted for 35 percent of total tax revenue in Sub-Saharan Africa, 23 percent in Asia, 22 percent in the Middle East and North Africa, and 17 percent in Latin America and the Caribbean, compared with 2 percent in the industrial countries (World Development Report, 1988, p. 84).

As to policy reform, it was suggested that value added taxes and excises on luxury commodities and on commodities that create negative consumption externalities can be established instantaneously while a tariff reform will take time. At the same time, tariffs should be reformed according to a predetermined timetable, made public in advance, that permits producers to adjust.

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